



Common measurement plane: $(\mathbf{n}, \mathbf{u}, \mathbf{r})$

Individual ray: (\mathbf{l}, \dots)

Polarisation emission vector \mathbf{a} (e.g. E field)

Polarisation on ray: $\mathbf{b} = \mathbf{a} - (\mathbf{a} \cdot \mathbf{l})\mathbf{l}$

Ignoring the ray part is wrong:

$$\mathbf{c} \neq (\mathbf{a} \cdot \mathbf{r})\mathbf{r} + (\mathbf{a} \cdot \mathbf{u})\mathbf{u}$$

Polarisation in plane:

$$\begin{aligned} \mathbf{c} &= (\mathbf{b} \cdot \mathbf{r})\mathbf{r} + (\mathbf{b} \cdot \mathbf{u})\mathbf{u} \\ &= (\mathbf{a} \cdot \mathbf{r})\mathbf{r} + (\mathbf{a} \cdot \mathbf{u})\mathbf{u} - (\mathbf{a} \cdot \mathbf{l})[(\mathbf{l} \cdot \mathbf{r})\mathbf{r} + (\mathbf{l} \cdot \mathbf{u})\mathbf{u}] \end{aligned}$$